

A
T R E A T I S E
ON THE NEW-DISCOVERED
D R O P S Y
OF THE
MEMBRANES OF THE BRAIN,
AND
WATERY HEAD OF CHILDREN;

PROVING
That it may be frequently cured, if early discovered.

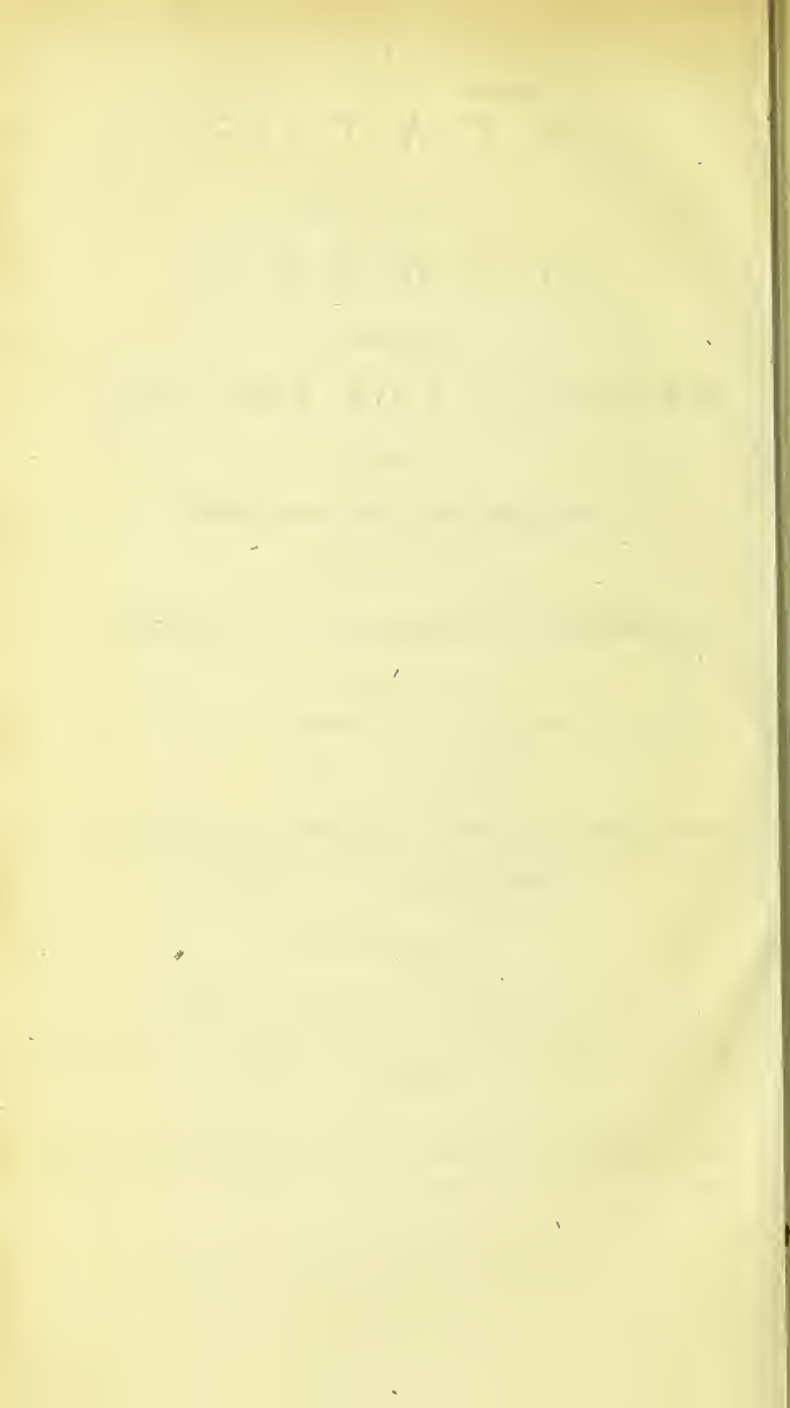
WITH
OBJECTIONS TO VOMITS, &c. &c.

TO WHICH ARE ADDED,
OBSERVATIONS ON ERRORS IN NURSING; ON THE DISEASES OF
CHILDREN, THEIR TREATMENT, &c. PROPER FOR THE
CONTEMPLATION OF PARENTS.

By WILLIAM ROWLEY, M.D.

Member of the University of Oxford, of the Royal College of Physicians in London,
and Physician to the St. Mary-le-Bone Infirmary, &c.

L O N D O N :
Printed for MURRAY and HIGHLEY, Fleet Street.
1801.



P R E F A C E.

HAVING dedicated above forty-five years in sedulous and uninterrupted study and extensive practical duties of a profession, whose excellent and sensible precepts are humanely directed to preserve health and cure diseases; after publishing in the Rational Practice of Physic several new sentiments, not only on defects in practice, but for improving the treatment of female, nervous, eye, gouty, bilious, ulcerous, putrid, dropical, venereal, and many other affections; after producing the two Latin volumes, *Schola Medicinæ universalis nova*; it was not intended to have appeared again in print, until the completion of the third volume of the last-mentioned work, containing all that long experience and observation had furnished in most countries and climates, besides an immense private and public hospital practice.

Some learned professional gentlemen, however, urged the necessity and probable utility of promulgating the succeeding observations on that fatal disease, the watery head of children, who had seen the success of the practice adopted, and now communicated. Respect to their solicitation, more than any other motive, has been an inducement to give the following imperfect sketch of a disorder, that has hitherto triumphed over all medical skill and erudition. It is sincerely hoped, by the united assistance of the Faculty in promoting future investigations on the present subject, that this dreadful malady will prove less fatal than formerly.

From a survey of the treatment of children in early life, it appears, several errors prevail in the nursery, and some in the medical department. To prevent and correct prejudices productive of irreparable mischief to the infant race, and to deliver more rational methods than are generally adopted, for the amelioration of their condition, a few pages in the subsequent work are occupied. The present specimen, *in compendio*, then, should be only considered as a very small portion of what may be expected hereafter, in a more ample investigation of these very important subjects, the result of long experience and reflection, on which may depend, in some measure, the firm or feeble constitutions of the rising generation.

To produce bodily strength, beautiful human forms, or what the *cognoscenti*, or persons of refined taste, call figures in accurate drawing, and to prevent deformity, are objects worthy of the attention of physicians and parents.

The antique statues of the Farnesian HERCULES, the fine-proportioned APOLLO, and the exquisitely beautiful VENUS, which I have formerly admired at ROME, give the most perfect models of all that constitutes masculine strength for laborious exercises, all that constitutes refined elegance, and the utmost limits of beauty!

A compact brain, with early ossification of the surrounding bones of the head, &c. afford the most rational prospects of not only muscular vigour, or an elegant form, but a sensible, vivid mind: whereas brain and bones of a *loose texture* create debility and deformity, dulness of conception, and frequently the watery head. Much more might be introduced on these subjects, meriting the consideration of the legislature and mankind in general.

Savile Row, St. James's,
October 10, 1801.

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T R E A T I S E,

&c. &c.

BEFORE anatomy was cultivated, medicine was superstitious, impotent, and devoid of rational principles. As the science of anatomy advanced, the medical art gained vigour and energy. What was, before, inexplicable, became obvious. How far anatomy, physiology, and pathology, have been extended, in ascertaining the situation, structure, connexions, uses, and actual diseases of all the parts of the human body, *Historia et Schola Medicinæ universalis nova* fully demonstrates; for it contains a concise view of all the discoveries of every age, and the appearances, after death, of the various diseases incident to the human body*.

* *Historia et Schola Medicinæ universalis nova*, continens Historiam Medicinæ, Anatomiam, Physiologiam, atque Pathologiam specialem, cum 68 Tabulis æneis, Auctore GULIELMO ROWLEY, M. D. Universitatis Oxoniensis, Coll. Regal. Medicorum Londinensis Membro, nec non Nosocomio St. Maribonensis Medico, &c. &c. Londini. In Ædibus Auctoris, No. 21, Saville Row, St. James's, et Bibliopolarum Tabernis habenda.—This Latin work was the labour of twenty-six years, and intended as an university school-book, to abridge the study of medicine, and to convey, in as small a compass as possible, the history and utility of every discovery that has appeared for above two thousand years. The approbation the Latin edition has met with in most of the learned universities of Europe induces the author to publish it, shortly, abridged in English; and for the benefit of students, and the profession in general, it will appear in numbers.

To this work, and the Rational Practice of Physic, reference will be made in the present practical publication, containing a description of a newly-discovered dropfy of the membranes of the brain of infants and children, with modes of prevention and cure, which have proved successful, when the disorder has been clearly understood in its commencement.

The distinguishing symptoms of what shall be called *Hydrocephelus Membranarum* have never been described by the most learned of the ancient and modern physicians; though its devastating effects have been, and are now, daily experienced, in the destruction of the tenderest hopes of numerous families, in every part, perhaps, of the world.

In a treatise published, some years ago, on improved methods of treating the dropfy, pursuing the usual mode of investigating diseases, and receiving nothing for truth, that is not fully demonstrated from appearances *post mortem*, or confirmed by practical experience, it is asserted, that a fine watery fluid is, sometimes, discoverable between the arachnoid membrane and pia mater. Every physician, conversant with anatomy, will recollect, that the *membrana arachnoidea* is situated between the *dura* and *pia mater*, and that its particular use, according to the most excellent anatomists, like many other parts of the wonderful structure of the brain, is not clearly comprehended*.

The

* The brain and nerves are the organs of all our sensations, animal or corporeal, which many and various experiments prove. Man perceives and has all his ideas from the senses. The effects are known, but the hidden causes are beyond human comprehension. When it be considered, however, that the arachnoid membrane exhales a fine vaporous fluid, that it is placed between the hard immoveable *dura mater* and the very vascular *pia mater*, with which it is connected by a fine cellular structure, that it does not accompany the *pia mater* in the convolutions of the brain, it will not be difficult to perceive its probable uses:

I. To moderate the hard pressure of the bones and *dura mater*, on the *pia mater* and brain, or cerebrum, &c.

II. To moisten the surface, and prevent coalitus.

III.

The fact of serum, or water, being deposited between the arachnoid membrane and pia mater, had been repeatedly seen from dissections; but it was only considered as a pathological fact, without making due reflections on its great importance. The progress to science and practical improvement is frequently tardier than humanity could wish. The same appearance had been observed in various diseases of the brain by *Bonetus*, Morgagnus, Lieutaud, the ingenious Dr. Baillie, and others, by my indefatigable friend and élève Dr. Hooper, at the St. Mary-le-Bone Infirmary, who claims the merit of first considering this membranous dropsy, a distinct disease.

Though the proof was fully established by frequent dissection, that water was collected between the arachnoid membrane and pia mater, without any dropsy of the ventricles of the brain; yet it required considerable time to ascertain the true symptoms that accompanied such an appearance, so as to distinguish that membranous malady from other diseases. Many years have elapsed since the commencement of the inquiry.

The obstacles to surmount, on some occasions, were almost insuperable, owing to the prejudice of individuals against the only true source of science, the opening of bodies after death, to determine what causes, during life, produced the fatal catastrophe*.

These

III. To facilitate the known action of the brain in inspiration, expiration, arterial and venal dilatation, &c.

IV. To moderate arterial attrition in the pulsating arteries of that very vascular membrane the pia mater.

V. To defend the brain, or sensorium commune, from external injury, by disuniting the dura mater, except in particular parts, from the pia mater and brain itself.

* I was early initiated into the operations and exhibitions of the dissecting-room, and instructed to suspect all hypotheses, unsupported by experience and practical facts. From the time I commenced the study of medicine and surgery in 1756, to the present period 1801, I never saw an obscure case prove fatal, that I did not endeavour, from the moment I perceived its importance, to impress, with the greatest solicitude, the necessity of ascertaining the causes. The liberal manner in which the inferior classes of society had been gratuitously relieved

These laudable and inquisitive pursuits, so disgusting to the major part of society, and even to many of the faculty, frequently reward the inquirer, and enable him to stem the torrent of fatal disease, as will amply appear in the present important discovery. The modern enlightened state of operative surgery owes the greatest part of its excellent precepts, and certain methods of cure, to this pure fountain of truth *.

It were to be wished, that physicians in general had been equally active in anatomical researches; or if they had, judiciously, applied to practice, what is already known, the art of medicine would have arrived at a much greater degree of certainty †.

Some of the first dissections, in which the membranous effusion appeared, were amongst children, or adults, whom I had not known during life. They were procured for the dissecting-room at the period I taught anatomy, surgery, and midwifery, from 1768 to 1774.

many years, at my house, gave a confidence and an influence that few practitioners, perhaps, ever enjoyed: by these means an acquiescence was frequently obtained, which otherwise might have been refused. From the time I became physician to the St. Mary-le-Bone Infirmary in 1790, to the present time, no opportunities have been neglected to enrich science with whatever offered worthy of attention; and this proves one of the most solid advantages to the pupils of that excellent seminary of medical instruction.

* In many of the diseases treated on in the Rational Practice of Physic, appearances after death accompany the symptoms and method of cure. The magnitude of the disease, the constitution in particular of patients, and the force of medicine necessary to remove causes, are principal considerations in that work. In diseases of the brain, and all nervous affections, madness, spasms, convulsions, apoplexy, and palsy, &c. &c. much information and reasoning may be collected concerning affections of the brain. See Rational and improved Practice of Physic, vol. i. and ii.

† It is my intention, if my life be spared, to produce a third volume, in addition to the other two, of *Schola Medicinæ* in English, containing the doctrine of every disease incident to the human body, formed on anatomical and physiological truths, and on the most determined experience, collected from all authorities, ancient and modern, worthy of attention, as well as by the immense observations of my own, acquired by between forty and fifty years practice; in which not only the English modes of treatment will be introduced, but whatever has been seen in every great hospital through Europe, in the West Indies, America, &c. &c. In which work all idle speculations and false theory, those disturbers and perverters of medical science, will be excluded.

These

These evident truths, at that time, were of no other use than to establish the real existence of such an appearance; for not knowing what disorder, or symptoms, had caused death, or produced the fluid between the membranes of the brain, it was impossible to decide on the subject. The fact was known, but the causes were obscure.

After the adventurous practice of giving *tartar emetic*, or violently vomiting infants or children, became prevalent, as recommended by the late Dr. Armstrong, and other writers on infantile diseases, the dropsy of the ventricles of the brain certainly became more common; and sudden death, not unfrequently, followed. I always reprobated this incautious and unnecessary violence, which militates against reason and humanity. Infants and children cannot expectorate: how are they to be instructed to assist the violent efforts of vomiting*?

Being formerly engaged in extensive midwifery and surgery practice, and, of course, occupied many years in observing the diseases of pregnant females and infants, I had strong reasons, founded on experience, to suspect, that the rash method of vomiting children impels a larger quantity of blood to the head by the arteries than the veins could return with equal promptitude. This often gave rise to the fluid deposited in the ventricles of the brain, and lately has been considered as productive of the membranous effusion. Some dissections have proved the suggestion not unfounded.

Amongst the dissections of children I had not attended during life, when the disorder appeared, without any other evident cause that produced death, was the following. It was a patient of Mr. Scarman's, then of Bond Street, now of George Street, Hanover Square. It happened about twelve years ago.

* See serious objections against rough vomiting, as practised in various febrile and other diseases, in page 352 of the *Rational Practice of Physic*, vol. i.

CASE I.

A CHILD, about two years and a half old, had been suffering under a violent hooping cough, the force of which, every practical physician knows, evidently sends a great quantity of blood to the head, during the convulsive fits of coughing, or in the violent vomiting of diseased mucus; so that, in many instances, there is a red suffusion from increased arterial action, and a darker red appearance in the face from venal retardation. Under such circumstances, it is evident that the venal returning system does not act with an energy equal to arterial force, in conveying back the blood from the head towards the heart. The internal carotids and vertebral arteries, and all their branches, act, at the same time, with a force equal to the external carotids; and it is reasonable to affirm, that the action of internal arteries, though not visible, and their numerous ramifications in the pia mater and brain, in general, are augmented proportionably to what is observed externally; indeed this might be clearly proved. Venal obstruction is a principal cause of exhalant arterial effusion. The impediment in the returning circulation, during violent fits of coughing, or vomiting, has sometimes ruptured blood-vessels in the brain: extravasation, comatose symptoms, and death, have soon followed.

The child, now the subject of consideration, was in the father's arms; and being tossed up in the air to divert it from crying, immediately after suddenly turned pale, was convulsed, and dropped down dead. The family were all consternation! Mr. Scarman being called; requested I might be consulted. The parents, sensibly affected at the loss of their infant, requested that the body might be opened, to investigate the reason of the death, which I had observed was the only mode left to be of service to the living. I performed the operation in the presence of Mr. Scarman and some other practitioners.

Dissection.

From supposing a ruptured blood-vessel of the pia mater in the brain had been the cause of the sudden catastrophe, the dissection was commenced by carefully opening the head. After separating the cranium and dura mater from the tunica arachnoidea, a fine serous fluid was found deposited under that membrane, particularly evident in the spaces that form the convolutions of the brain; the membranes were evidently detached, in many places, from each other by accumulated fluid, and the arachnoid membrane appeared thickened. On proceeding to examine the ventricles of the brain, I thought the cerebrum appeared more humid than common, though it has been proved the brain of children contains much more moisture than that of adults. No more fluid was found in the ventricles than a mere moisture. In short, there was no dropsy of the ventricles of the brain. Every part of the cerebrum was minutely examined; but no extravasation of blood in any part appeared. The cerebellum was, likewise, carefully scrutinized, in which
nothing

nothing uncommon was discovered. The extravasated fluid was perceived between the arachnoid membrane and pia mater, on the medulla oblongata, and even medulla spinalis. There appeared no evident cause to produce death, except the effusion of water between the arachnoid membrane and pia mater.

Contemplations and Reasonings on the Case.

I. The great commotion, in the violent fits of coughing, in the whooping cough, forced a superabundance of blood to the head.

II. The minute exhalent vessels of the pia mater, by the violent and repeated force of coughing, and increased action, deposited fluid between the fine cellulous arachnoid membrane and pia mater.

III. The inhalent, or absorbent returning system had not kept pace with the arterial action, in absorbing the humidity, or returning it to the larger veins; consequently the deposited fluid remained, and in repeated fits of coughing had been, probably, increased in quantity.

IV. After the increase of fluid, to a certain degree, compression of the brain was the consequence, which suddenly acted upon the nervous system, that gives energy to, and preserves the action of, the heart, diaphragm, or vital organs, &c.

V. The medullary and cortical substance of the brain, and origin of the nervous system, being compressed by the serous inundation, appeared the cause of the child's sudden death, by effectually destroying the nervous influence of the par vagum, or sympatheticum magnum, and, of course, the circulating powers of the heart and sanguiferous system. The child expired in a moment by syncope and convulsion.

VI. The violently tossing the child in the air might have likewise contributed to the fatality from agitation and too violent concussion.

Another instance shall be given, in which I attended a child who died of this membranous dropsey of the brain. Many more similar and fatal proofs likewise might be produced; but they are all so uniform in their appearance, except with the addition of water sometimes in the ventricles, that to repeat them would be swelling the page to no useful purpose.

CASE II.

MR. Breach, of Bond Street, and his family, had been much afflicted by the severe loss of several children. A remaining child being ill, I was consulted: the child seemed to labour under a catarrhal fever, with a little cough; for which common remedies

were ordered: there appeared a heaviness in the eyes and florid flushings, great heat and rapid pulse, at different times of the day, which never were of long continuance. At other times there was observed a pallor in the face; the body was cooler, and the pulse slower. The child seemed uneasy, was fractious, and could scarcely be diverted or pleased by any kind indulgences or attentions of the parents and family. In this manner the disorder proceeded, but with apparent amendment. There was slight drowsiness at times, at other periods of the day an anxious wakefulness: the eyes seemed duller than ordinary, but no stupor, or comatose symptoms, accompanied the complaint, except in a slight degree; the skin was dry, and there was a torpor in the intestinal canal, so that they could not be irritated to action without brisk purgatives, after all the symptoms had nearly subsided, except a languor in the countenance, debility, and still occasional flushings in the face, or pallor. The child, however, sat up, and, excepting these last particulars, appeared in a convalescent state.

I saw her amusing herself in the drawing-room, and seeming only weak; but I had not left the house above an hour before paleness, syncope, and convulsions, succeeded. Two or three practitioners were called, and amongst them my respectable and worthy friend Mr. Heavyside, Surgeon-extraordinary to his Majesty, whose liberality in freely opening an excellent anatomical museum for the inspection of the profession merits the highest commendation. Blood was judiciously attempted to be taken from the jugular without success, and a warm bath was ordered. When I came, the patient was in its father's arms, placid, but with apparent heaviness in the head; there was no dilatation of the pupils, but a stertorose respiration, though not in a very high degree. The pulse was exceedingly rapid. Soon after, the child was attacked with syncope and convulsive fits, and suddenly expired.

The afflicted parents having so repeatedly lost their children, and sensibly wishing to have the cause of this sudden death investigated, to prevent, if possible, future misfortune, permission was given to examine the cause by opening the body. This was performed by Mr. Heavyside; Mr. Lewis of Lower Brook Street, Dr. Hooper, and myself, being present.

Presuming that the cause of sudden death would be discovered in the brain, the head was first opened.

Dissection and Appearances.

After a portion of the cranium and dura mater was removed, a considerable quantity of very thin, watery fluid was perceived deposited immediately under the arachnoid membrane, between that and the pia mater, exhibiting a true *hydrocephalus membranarum*. Where there was thickened arachnoid membrane and pia mater, there appeared, more or less, serous fluid between them.

In the ventricles of the brain no water was found, which accounted for the non-dilatation of the pupils, during life. The dilatation of
the

the pupils being the distinguishing characteristic of the dropfy of the ventricles of the brain, which, very probably, in most cafes, fucceeds to the dropfy of the membranes, when this latter difeafe does not, of itfelf, prove fatal. There was nothing particular in the cerebellum: the fluid, however, was traced to extend to *medulla oblongata et fpinalis*, a circumftance obferved in many other diffections.

The appearances recited were evidently the caufes of the fainting, convulfion, and death, moft probably from compreffion of the cortical, medullary fubftance of the brain, and origin of the cerebral nerves, the par vagum, in particular, as that nerve, called likewife fymphatheticum magnum, diftributes the nervous influence, as hath been obferved, to the heart, vital organs and vifcera, in general *.

On the Symptoms of Hydrocephalus Membranarum, or, membranous Dropfy of the Brain.

IT required confiderable time and attention to difcover, firft, the diftinguifhing fymptoms of this diforder, fo fatal in its effects; fecondly, an adequate mode of cure; both which, by no fmall labour and attention, have been accomplifhed, as far as the difficulties to furmount have been fubdued, as opportunities have prefented themfelves, and circumftances of cafes admitted. A fpirited, determinate exertion, patience and perfeverance, conquer all difficulties. *Pertinax labor omnia vincit.*

In delivering the fymptoms of this dreadfully fatal diforder, recourfe is had to cafes, where the patients have, unfortunately, died before the difeafe, or remedies fufficiently efficacious, were difcovered. The bodies have been afterwards opened by myfelf, or other attendant practitioners. The

* The origin of the nerves may be feen in *Schola Medicinæ univerfalís nova*, very curioufly and minutely engraved, plate xxvii. xxxiii. xxxiv. and xxxvi. with the plexufes, different fureuli, ramifications, and their various diftributions, for the purpofes of fenfibility and energetic nervous government of the various functions, performed by the thoracical and abdominal vifcera, or internal parts, their fymathy, &c. &c. which account for numerous fenfations and fact, obfervable in different vifceral difeafes, mental and nervous affections. Confult, likewife, many reasonings in the treatife on female, hysteric, and nervous difeafes, madnefs, fuicide, biliary, apoplectic, paralytic, and lethargic affections, gout, &c. in the firft and fecond volume of the Improved and rational Practice of Phyfic, founded on anatomical Truths.

symptoms, previous to death, were minuted down during life, as they appeared, or succeeded to each other; some of which are common to different infantile diseases, and particularly to the first and second stages of the dropsy of the ventricles of the brain. This circumstance, for some time, occasioned no small perplexity in distinguishing between the *hydrocephalus membranarum* and other morbid affections, which have a similitude of symptoms.

There still, however, remain some difficulties, which future observation and the united assistance of the learned of the faculty may supply. If the enumeration of the symptoms be not so complete or satisfactory as might have been wished, yet it may urge practitioners to be on their guard, in the recollection, that such an insidious, dangerous, and hitherto unknown affection, exists.

Infants and children are frequently incapable of describing their distressing complaints; they are often seen in heaviness, pain, or torments, expressed by their mournful cries, screams, and distressed countenance; but it is difficult, sometimes, to discover the true cause of their misery. In instances of obscurity, then, it will be prudent to advert to the possibility of serous, membranous effusion on the brain.

Enlightened as the art of medicine is at present, in some obscure cases of infantile, and other practice, the penetration and judgment of the physician frequently supply the deficiency of verbal narration. Long experience and accurate observation throw much light on practical medicine, in minds previously fraught with true theoretical science; but a competent knowledge of the art must not be expected by the most industrious physician early in life, and much less by those false speculations, with which the art has, lately, superabounded*.

Experience

* Before young men signalize themselves in difficult speculations, they should study Locke on the human Understanding, Watts's Logic, Quintilian's

Experience is the very soul of medicine; the art has always something to learn, and its best precepts are nurtured, improved, and ripened, by long practice, deep reflection, and solid judgment.

It is melancholy to reflect, that many thousands of infants and children must have perished, in every age, by the membranous dropfy of the brain, who might have been preserved, had it been clearly demonstrated, that such a common infantile disorder had existed, and if remedies equal to the force and danger of the disease had been timely applied. It is, however, a great pleasure now to anticipate the advantages of the present discovery, when it may become more extensively known.

As the *hydrocephalus membranarum* attacks, particularly, the nervous and animal functions, the symptoms observable in those organs of all sensations, mental or corporeal, shall be first considered.

Secondly. The powers and evident effects of the nervous system on the heart, arteries, or principal vital functions.

Thirdly. The symptoms observable in the natural functions.

Quintilian's Institutes, Cicero de Officiis, Newton's Philosophy, and other preparatory auxiliaries, and then study the principles and practice of the ancients; but particularly the modern institutions of the great Boerhaave, Hoffman, Haller, Caldanus, Gaubius, &c. We should not then be pestered with the rash productions of juvenile impetuosity, or older artifice, imbibing in young minds false notions. Those who are bewildered in the regions of false doctrines seem afraid of discovering the truth, lest confession of errors and contrition follow. The vain laborious attempt to depreciate the greatest benefactors the art ever knew, by sarcasms on what they are pleased to call *humoral pathology*, are deficient in reason, and seemingly destitute of that deep learning that should ever adorn the art. As long as diseases afflict mankind, morbid fluids will ever act as stimuli on moving and irritable solids, though it cannot be allowed, that the latitude the greatest men of the moderns have taken in specifying, so peremptorily, the exact state of the different morbid fluids that act on the solids, is strictly true; yet the greatest part is highly rational. Who, in practice, has not smelt the acid perspiration? who has not perceived the cadaverous exhalations in the highly dangerous putrid fevers of the West Indies? has not the dark-coloured dissolved blood been perceived in the sea-scurvy? is the blood not too serous in the dropfy? Are not various exhalations from the mouths of arteries and ulcerations highly acrimonious and excoriating? Are not the causes of exanthemata varia first in the blood, and conveyed to the surface by the arterial system? &c. &c.

The general Symptoms of Hydrocephalus Membranarum in the animal Functions, or Brain and nervous System.

I. Heaviness and apparent dulness of apprehension.

II. Uneasiness, peevishness, unreasonable mental irritation, and a dislike to infantile amusements.

III. Mental irritation is, sometimes, accompanied with momentary delirium and incoherent expression.

IV. Momentary horrors, yawning, gaping, and a stretching out of the hands, or slumbering.

V. Various degrees of debility in the muscular, or moving powers, dependent on volition, from a limping to a palsy of the lower extremities.

VI. Heat on the top of the head, whilst all other parts of the body are cool.

VII. The head shakes with an intolerance of light; and is, at times, in great pain; the eyelids are shut, as in sleep, and, if raised by force, on admission of the rays of light, fall down, and immediately close.

VIII. A frequent desire to change position; if lying down, an inclination is expressed to rise, and when taken up, crying until they lie down again. No position seems to alleviate the morbid distress of the perturbed mind, and ungrateful bodily sensations.

IX. Tears flow, from apparent grief, accompanied with mournful distressed sighs and sobbing.

X. Twitching of the tendons, slight convulsions, and spasms, or contraction of the flexor muscles of the hands, and clenching of the fists.

XI. Dulness and drowsiness.

XII. Stupor, lethargy, convulsions, syncope or fainting, insensibility, death.

General Symptoms observable in the vital Functions.

I. Palpitation of the heart, but not in all cases.

II. Accelerated arterial action, evident in a quick, rapid pulse, from 100 to 150, more or less; but commonly, low and feeble; momentary flushings, or redness of the face in various degrees, as if from increased arterial action, but little heat.

III. At different times of the day, the pulse slower, with pallor; alternate flushings and paleness succeed.

IV. The pulse is, sometimes, irregular, and, in the latter stages of this disease, feeble, intermittent, and scarcely perceptible.

General Symptoms in the natural Functions.

I. In some there appears, in the early stage of the disorder, a voracious appetite; in others, a disinclination to food.

II. The descension and expulsion of the fæces are impeded; an obstinate costiveness prevails, seemingly from an insensibility and torpidity of the nervous system of the stomach and intestines.

III. The skin is commonly dry; the perspiratory organs, or exhalents, seem to have their nervous and active energy diminished.

IV. If, superadded to the major part of the foregoing symptoms, the pupils of the eyes be dilated, immoveable, and accompanied with blindness; and not arising from idiopathic diseases of the eyes, or sympathetic; then it may be depended on, that water is collected in the ventricles of the brain, compressing the *thalami nervorum opticorum*, or origin of the nerves of vision; which disease usually ends fatally.

On the distinguishing or diagnostic Symptoms of Hydrocephalus Membranarum.

It is difficult to give the precise diagnostic, or distinguishing symptoms of the hydrocephalus membranarum; it is more easily comprehended by ocular demonstration than expressed by words—*Profunda lustrare absque exemplis arduum.*

The diagnostic, or distinct symptoms, by which the membranous dropy of the brain may be known from other diseases, are :

I. The general attack, evidently, on the brain, nervous and animal system.

II. Heaviness of the eyes, diminution of nervous energy, and drowsiness.

III. Alternate flushings, more or less florid; and, at other times, pallor of the face, and sometimes of the lips.

IV. The rapidity of the pulse, beating from 100 to 150 at different times of the day, with little or no increase of heat, except on the top of the head.

V. The slowness of the pulse, at intervals, beating not above 84 or 96.

VI. Intolerance of light, seemingly from increased sensibility of the retina, or from inflammation of the membrana choroides.

VII. The torpor of the intestines and obstinate constipation, scarcely removable by brisk purgatives.

VIII. It differs from scarlet, or other fevers, because the red appearance, or floridity of the face, is not so deep, nor remains stationary; but changes several times in a day.

IX. It likewise differs from fevers, as slumbering and comatose symptoms commonly appear towards their termination; but in *hydrocephalus membranarum* listlessness to action, and an heavy dulness, commence with, or appear in the first stages of the disease, and continue till death.

X. It

X. It differs from fevers, because it does not arise from cold, nor contagious putrid miasmata; nor, as fevers generally do, commence with cold shiverings, succeeded by heat, thirst, and quick pulse. In many cases, little or no febrile heat is perceived, even when the pulse beats 140 or 160.

XI. It differs from the flushings and heats observable in teething, because these causes may be traced by examining the gums, which are inflamed, with increased secretion of saliva, heat in the mouth, pain, &c.

XII. Most fevers are attended with watchfulness, and, except the nervous, with a certain degree of thirst, and a diminished secretion of saliva, dry mouth and fauces, parched tongue, &c.: but *hydrocephalus membranarum*, with the reverse of watchfulness; namely, dulness, slumbering and insensibility, stupor. The tongue is not dry, nor parched, or rarely so; thirst is not vehement; but generally very moderate, unless a fever be superadded.

XIII. The consideration of what leads to the disorder throws great light on the subject, for it is most commonly, though not always, a disease of debility, and succeeds to other complaints, in which violent vomits had been administered to the whooping, catarrhal, or other coughs; or from whatever could debilitate the constitution and break down the crasis of the blood, exclusive of natural causes of debility, independent of any specific disease.

On the predisposing Causes of Hydrocephalus Membranarum.

I. Original mal-formation in the uterus, or womb, producing the large head, with great distances between the bones of the head. Deficiency of osseous particles.

II. The preposterous method of giving vomits or opiates, during pregnancy, disturbing or perverting the animal, vital, and natural functions, producing enfeebled, or sometimes dead children, or otherwise committing injuries that are incalculable.

III. Violent crying, coughs; cold bathing, going almost *naked*, and checking perspiration.

IV. The indiscriminate and rash administration of vomits repeatedly given in children's diseases.

V. Debility, from various preceding disorders, as profuse evacuations, hemorrhagies, purgings, &c.; a relaxed weakly habit, watery blood, &c.

VI. All violent motion, or tossing infants, or children, falls, concussions, and mischievous rude shaking.

VII. Over-feeding; improper mixture of foods, either from poverty, or given by indulgent parents, from affectionate motives. The one produces inanition; the other redundance, or morbid states of the fluids.

VIII. A want of proper nourishment to poor females during pregnancy, or whilst suckling infants, has lately debilitated or destroyed immense numbers*.

Such are the predisposing causes of this membranous dropsy of the brain, and other debilitating diseases of children, that sweep off thousands annually under two years of age, apparently by convulsions, but generally arising from membranous affections of the brain, which dissections fully prove.

* It is almost incredible the number of infants that perish from this and other sources; but particularly from the very high price of all the necessaries of life. While such unfounded conceits are in the mouths of credulous or designing men; whilst the following doctrines continue to be supported, as "*trade will find its level*"—*every one has a right in trade to make the most of his money—trade must be protected, in all its abuses even in all the necessaries of life*, though our fellow-creatures perish by thousands through absolute want, that a few individuals may accumulate wealth to the injury of all the rest of society: I say, as long as *Dr. Adam Smith's* speculations are suffered to prevail, though *daily* and *fatal experience* have proved their fallacy, so long will men with immense capitals avail themselves of the specious delusion, until the country is depopulated of half its inhabitants. Such doctrines and such practices have been the overthrow of great empires, and may be in time the destruction of this, if some sensible means be not devised to remedy these avaricious commercial evils. Why not have public granaries, or severely punish with confiscation of property all combinations to raise the price of the necessaries of life? The adulterations of foods and drinks are, likewise, very debilitating and abominable. See the effects of *bad corn and bread* in the *Rational Practice of Physic*, and in the treatise on diet, &c. &c. vol. ii. and iv. where these subjects are seriously considered.

On the more immediate Causes of the membranous Dropsy of the Brain.

I. The exhalent arterics pour forth more fine serous fluid, between the membranes, or in the cells of their cellular structure, than is inhaled and returned by the absorbents*.

II. From the superabundant humidity and impeded absorption, accumulation of fluid is produced.

III. Increased fluid and thickened membrane produce compression of the cortical and medullary substance of the brain and origin of the cerebral nerves.

IV. Compression continued, and additional increase of fluid, produce comatose symptoms and an abolition of nervous energy.

V. The heart is deprived of its nervous influence, the circulating powers cease, and death ensues.

The Prognostic of Hydrocephalus Membranarum.

I. In proportion to the degree of accumulation of fluid in the cells of the cellular structure of the arachnoid membrane, pia mater, and increased crassitude of membrane, so must the case be more or less dangerous.

II. In so desperate a disease, if powerful remedies be not applied in time, the disorder proves fatal.

III. If the disease be discovered in its early stages, it is, generally, curable, by the spirited methods that will be communicated.

IV. If powerful remedies do not succeed promptly, the disease increases and soon terminates fatally, sometimes with the addition of water in the ventricles of the brain.

V. If trifling, superficial practice, as is, too often, the

* See Kaaw Boerhaave de Perspiratione, Hippocratis Dicta, and Schola Medicinæ de Exhalatione arteriosa et Inhalatione venosa.

case, be applied, the disease increases, and death is always the consequence*.

On the Cure of Hydrocephalus Membranarum.

The discovery of the actual existence and causes of a disease, with a physiological knowledge of the seat and functions affected, is the first step to rational modes of cure.

Punctures and other operations, so useful in different species of dropsies, are, in general, contraindicated in *hydrocephalus interno*.

Blisters behind the ears, at the back of the head, to the neck, temples, and between the shoulders, mercurial frictions, have been spiritedly applied; evacuants and mercurials have been repeatedly administered; incisions have been made into the brain itself, even to the ventricles. All have failed. The disorder has ever proved fatal. Medicine had the mortification to see thousands of innocents annually perish with convulsions, comatose, fainting, and other symptoms, under the application of the recited remedies; and it was seldom that any single infant was snatched from the grave by the most judicious practice, devised by gentlemen of the first distinction for learning and skill in the profession. The disorder was commonly discovered too late to be remediable.

The dropfy of the ventricles of the brain has been considered so certainly fatal, that gloomy despair attended every ra-

* Though the cure of the scarlet fever of children, or the scarlatina anginosa with the putrid sore throat, is so absolutely certain by the modes I have published, that it would be a disgrace to the art for any child to die, who took the proper antiseptic remedies in time; yet numbers perish annually by a feeble practice in that and other disorders of the putrid kind, namely, by giving trifling saline remedies, when bark and acid of vitriol should be administered. A gentleman who attends many boarding-schools, had, in one season, eighty-five young ladies in the scarlet fever; eighty-four he cured by my method, but the eighty-fifth died, by calling a physician, who applied leeches, prescribed cooling neutral remedies, and gave the bark and acids too late to save life. See my treatises on the putrid sore throat and scarlet fever of children, where the causes of death are proved to be owing to erroneous practice.

tional and humane attempt to cure. Death, armed with his inexorable destructive scythe, sternly stared physie in the face, and mowed down, with irresistible fury, the infant race. Every impression of enlivening hope was obliterated from the medical mind, when dilatation of pupils and blindness accompanied the other fatal symptoms of brain dropsy. It is presumed, hereafter, by comprehending and combating with energy the first approaches of the destructive disease, that its ravaging and fatal effects will no longer be considered opprobrium medicorum; but will be effectually resisted, and the lives of thousands of children be preserved, who otherwise might inevitably perish.

The repeated disappointments in medical attempts to cure, and a consideration of the magnitude of the disease, and the little probability of getting at its seat when far advanced; with reflections on the extreme danger of injuries to which the brain is liable from fractures, fissures, concussions, depressions, &c. that come under the province of surgery, only added to the difficulties medicine had to encounter; *sed nil desperandum*.

The subsequent reasonings, on which the modes of treating hydrops membranarum were founded, are respectfully submitted to the consideration of the learned in the profession; only observing, that, however deficient they may be on so difficult a subject, yet the practice has proved successful in numerous instances, when the disease has been early discovered, and the remedies properly applied.

I. As a very copious discharge from blisters applied on the cutaneous external surface of the thorax produces excellent effects in the pleurisy, peripneumony, &c.; where thick adipose structure, robust muscles, and bones, are situated between the diseased pleura and the vesicating remedy, it was conceived, from analogy, that a great discharge on the scalp, and particularly on the sutures, might greatly contribute to remove the

membranous brain dropfy, the precursor of the dropfy of the ventricles.

II. As the univerfal communication of the cells of the cellular structure, which, with very few exceptions, forms every part of the human body according to the irrefutable proofs and numerous demonstrations collected by the immortal Haller; it was conceived rational, that, by exciting an increased action in the cutaneous exhalents of the scalp, and attracting a copious humidity externally, some sensible effect might be produced in the dura mater, membrana arachnoidea, and pia mater, which, in the direction of the falciform process, and in other parts, are, in some degree, connected. The sutures conveying vessels to and from the dura mater, &c. it was presumed, might likewise be acted on, and that a stimulus externally might diminish the stimulus internally, and give an opportunity for the inhalents, or absorbents, to resume their offices of suction or attraction; and that thus the effused fluid might be conveyed back into its proper channels. Thus the accumulated and accumulating fluids might be diverted or carried off from the seat of disease in the internal membranes, and the brain be thus liberated from its oppressive distress.

III. As calomel, tartarum emeticum, and pulvis antimonialis Jacobi, had long been experienced extremely efficacious in inflammatory and other affections of membranes, and particularly in the pleurisy, peripneumony, or inflamed lungs, paraphrenitis, cynanche trachealis, or croup, &c.; and that even diseases of the hard periosteum frequently yielded to mercurials, it was thought reasonable to suppose, that these or such-like penetrating remedies would greatly assist in the cure of the membranous dropfy. Experience has proved the suggestion not ill founded.

IV. When the attraction of particles forming the first principles of human substances, in different degrees, recede from

from each other, and lose their due coherence, relaxations, or laxity of parts, are the consequence. This is demonstrated in most dropics, or serous depositions within the cells forming membranes, or cellular substance, in which an increased thickness of the membrane, or cellular tumefaction, is evident. It therefore appeared, that, besides evacuating, or diverting the course of the serous fluids to other parts, and stimulating the torpid inhalents, or lymphatics, to restore their lost powers of absorption, it was necessary to corroborate the relaxed constitution, in general, to reinstate the original functions so as to resist future accumulations. Bracing remedies, therefore, that could strengthen the habit and nervous system, and give that attractive energy and due coherence to the particles relaxed by the disease, was a proper curative indication. Evacuating, or diverting the fluids from the internal parts, would be of no permanent utility, unless the membranes could be defended from the future reception of the offending fluids. As watery blood, laxity, and overflowing humidity, directed to the brain, were causes; in addition to the powers of the tonics, a *very dry nutritious diet* was considered useful to co-operate with those invigorating remedies. Destroy the source, and the channels conveying superabundant fluids cannot be supplied.

The rational indications of cure, from what has been premised, appeared to be the following:

I. To attract and evacuate fluids from the exhalents of the most contiguous parts, by means of blisters, to the sutures and whole hairy scalp, according to the exigency of the case, and to continue the discharge copiously*.

* It is supposed, that every practitioner well comprehends the action of fluids in the communicating cells of the tela cellulosa, cellular structure; doctrines of universal exhalation and inhalation. These subjects are more diffusively discussed in the treatise on the dropsy, and more will appear hereafter on the application of that knowledge to practical medicine.

II. To promote perspiration, and stimulate the absorbents by calomel and antimony, and keep the body warm.

III. To act upon the torpid enervated stomach and intestines, and occasionally to evacuate serum by mercurial and stimulating cathartics.

IV. To impart tone and vigour to the debilitated habit by tonics of bark, steel, vitriolated zinc, acid, or sweet elixir of vitriol.

V. The instituting a very dry diet, that the corroborating effects of the tonics may not be counteracted and defeated, by diluting drinks or slops, tea, &c.

VI. After the cure to still continue the tonics, dry nourishing diet, and warm clothing, to prevent a future relapse*.

External Remedy.

The cure consists in attracting a great quantity of fluid externally, by having the head shaved, and by the application of a blister covering the whole head, which must continue discharging, by means of unguentum cantharidis, or unguentum fabinæ; but this latter is not so certain as the former, unless some pulvis fabinæ be added.

As the unguentum fabinæ does not cause strangury, if a great discharge be obtained, it is superior to the unguentum cantharidis; but a considerable discharge must be procured, or the disease will certainly prove fatal.

The attraction of fluid to the scalp must be continued a considerable time after the comatose or other pressing symptoms abate, or are entirely removed.

The size of the plaister may be gradually diminished; and when the cure is completed, and the habit strengthened by tonics, a discharge is no longer necessary.

* Whoever wishes to know how the body is nourished, with the effects of salubrious and insalubrious or unhealthy diet, may read the fourth volume of the Rational and improved Practice of Physic.

To effectuate these purposes, three weeks or a month is the least time allowed for the discharge to be continued; but in cases wherein dulness has been longer-observed, the evacuation by a stimulating ointment has been continued four or five months, about the size of the palm of the hand, or of a crown piece, exactly placed on the vertex, or crown of the head, where the hair naturally divides.

All efforts to cure this disorder without blistering have been fruitless; but with blisters and a copious discharge, in the early stages, the cure is frequently obtained.

Internal Remedies.

The *intestines* are to be kept active by about eight, ten, or twelve grains of powdered jalap, and ten or fifteen grains of magnesia; or to the same quantity of powdered jalap, or rhubarb, two or three grains or more of calomel may be added, if the former should not act. Pulv. scammonii compositus is likewise used for the same purpose. Stimulating clysters may also be occasionally administered.

Perspiration should be promoted by about a quarter of a grain of calomel, and one or two grains of pulvis antimonialis of the London Pharmacopœia to be mixed with a little saccharum album, and taken every four or six hours. After each powder, about a drachm, or two drachms of aqua ammoniæ acetatæ (spt. Mindereri), diluted with a little aqua, should be given; to which may be added syr. croci; and, if urine be impeded, two drops of tinctura or acetum seillæ may be added.

This is the treatment in the commencement of the disease; and it is remarkable, that the mercury does not act as a salivant, nor purgative, but strictly as a penetrating alterative, and generally diaphoretic*.

* The same circumstance has happened in cynanche trachealis, or croup, inflammations of the lungs, pleura, and other membranous, febrile diseases, which I have, through life, successfully treated with a combination of antimony and hydrargyric preparations; the excellent success of which is well known to numerous practitioners in most parts of this great metropolis.

After the pressing symptoms abate, which happens in a few days, tonics are prescribed, of infusum rosæ, bark, or vitriolated zinc, myrrh, &c. in small doses, appropriated to ages, circumstances, and peculiarity of cases.

The vitriolic acid is proper, if any putrid-tending symptoms accompany the disease, either with or without bark. Vitriolated zinc, to the eighth of a grain, dissolved in aq. rosæ, myrrh, and decoction of Peruvian bark, or a thick solution of the extract with syrup, are proper, where great debility, tremors, or other nervous affections, make their appearance; and likewise when the physician has been called, after the disorder has been of a few days continuance.

The hydrargyric preparation, with antimony, is to be continued every night or morning, during the administration of the antiseptics or tonics. The blister is to be likewise kept discharging, which has been already recommended; it occasions great irritation, in many instances; but it is requisite and salutary in this, and all diseases that produce such evident torpidity, comatose, lethargic symptoms, and stupor.

Eight Cases, illustrative of the antecedent Doctrines on Hydrocephalus Membranarum.

The multiplying doubtful opinions is the destruction, but the augmentation of practical truths the conservation, of the art. From singular and extraordinary cases no general curative inference can be rationally formed; but from the aggregate result of repeated successful practice, the most permanent medical doctrines are fully established. A physician, who, from a comparative view of the different degrees of practical excellence in the art, embraces that which from experience is found most perfect, demonstrates profound sagacity; but he is weakest in intellects, who, from credulity and a versatility of mind, grasps at every new phantom, or conceit, that makes its temporary appearance.

The successful administration of medicine must ever depend on diversifying remedies, according to constitutions of patients and existing circumstances; therefore, in the treatment of hydrocephalus membranarum, some small difference will be perceived, though the general doctrines are similar. In every part of the Rational Practice of Physic, the method of accommodating medicine to the variety observable amongst human beings, not only in health, but in sickness, is emphatically enforced*.

CASE I.

MR. Breach, of Bond Street, who had so repeatedly lost his children, the last of which was opened, as hath been already represented, had a boy about three years old attacked with hydrocephalus membranarum; he was florid and plethoric, and, in the beginning, laboured under inflamed lungs and a violent cough: flushings of the face, and alternate paleness, were amongst the symptoms; rapid pulse, heaviness, drowsiness, and others, already delineated as characteristic of the membranous dropsy of the brain. Immediately blood was ordered to be taken from the jugular vein; indeed speed was so necessary in this case, that I borrowed a lancet, and performed the operation myself, though contrary to medical etiquette. Mr. Kilpatrick, of St. Martin's Lane, likewise attended the case.

On the head was placed a large blister: internally were prescribed small doses of antimony, calomel, and a draught composed of five grains of camphor, united by decorticated almonds and sugar, to which were added a few grains of nitre: perspiration was thus promoted without increasing heat. The symptoms long remained violent and oppressive, and bleeding was repeated.

By a continuance of the above methods, occasionally giving a smart purgative, and keeping the blisters copiously discharging, the cure was afterwards completed by tonics. The parents were uncommonly assiduous in their attention to all that was prescribed, and greatly contributed to the success. The child now continues in perfect health.

CASE II. *With a Fever of the putrid Kind superadded.*

In the month of June 1800, I visited the female child of a physician, in Upper Berkley Street, who laboured under most of the symptoms of the membranous watery head, with stupor, rapid

* In the subsequent cases a rigidly dry, but nutritious diet was generally instituted.

pulse, violent flushings, &c. The pupils commenced to dilate, but without blindness.

Mr. Jones, a respectable apothecary of Mount Street, attended this case. In addition to the other symptoms, the tongue was brown, and the case plainly indicated a putrid tendency. A large blister to the head was prescribed, and the cort. Peruv. in extract, but dissolved with an addition of the vitriolic acid. Tinctura rotarum was used as common drink.

By a perseverance in this mode, and giving doses of calomel and antimony every night, a cure was perfectly completed. The child has been at my house in Savile Row within this month, and appears in health and strength.

CASE III. *Attended with Tremors and nervous Symptoms.*

The son, about six years old, of a gentleman high in his Majesty's service in Somerset House, to whose family I have long been physician, was attacked with the membranous watery head. He was attended, some few days before I saw him, by Mr. Irvine, in Duke Street, Portland Chapel. The usual symptoms were present, with startlings, momentary ravings, and tremours; and he was greatly oppressed by stupor and heaviness of the head, so as to continually lay his head on the table. His pupils were not dilated; I therefore entertained hopes of success. A blister was applied all over the head; decoction and tincture of bark, acid of vitriol, and syr. cort. aurant. were prescribed three or four times a day. The intestines were excited to action by fifteen grains of pulv. rhei, and three grains of calomel, which were repeated occasionally.

In a few days amendment was perceptible, but a heavy dulness remained; the child continuing sluggish and debilitated, the remedies were long continued; and the blister, though diminished in size, was kept discharging many months. The cure is perfect, and the child remains in excellent health now at the country seat a few miles from London.

CASE IV.

I was requested to meet Dr. Atkinson, an experienced accoucheur, in Jermyn Street, at Mr. McMillan's in the same street, whose child was very much indisposed. At first sight it was agreed that the infant laboured under the membranous watery head, having the symptoms of alternate flushings and pallor, rapid pulse to 160, drowsiness, and stupor. A large blister was applied all over the head, calomel and antimony were prescribed, with a draught of aq. ammoniæ acetatæ (syr. Minder.), et aqua cum syr. croci. The disorder was obstinate, and the eyes appeared a little dilated, without blindness. The remedies were spiritedly continued until the symptoms abated; then bark and acid of vitriol were administered

as a tonic ; by which, and continuing the discharge of the blister, a cure was effected. The child is now living in perfect health.

CASE V.

The child of a lady of fashion, between three and four years old, was brought from the country for my opinion. She had an attack, two successive evenings, about five, with flushings of the face, quick pulse, and slight feverish heat : drowsiness and stupor succeeded.

On the third evening, I being at my Villa, Kentish town, and the lady much alarmed, sent for the experienced Dr. Frazer, who judiciously conceiving some mischief in the brain, ordered a blister to the neck, a brisk calomel purgative, and a diaphoretic draught. Mr. Kerrison, a next-door neighbour, and formerly my pupil at the Saint Mary-le-bone Infirmary, likewise attended. On the next morning we met, and on attempting to open the eyelid, to examine the pupil, it was immediately closed, and a great stupor prevailed, with rapid pulse, flushings, &c.

After consultation, it was inferred that there was reason to believe, from the symptoms, that the membranes of the cerebrum were affected, and injured by the exhalent fluids ; in short, there was membranous cerebral effusion.

The whole head was shaved and blistered, which Mr. Kerrison saw judiciously executed, by holding the warm hand on the blister until it adhered firmly to every part of the head, which is always necessary in these cases. Time lost, and the not procuring a copious discharge on the scalp, in these desperate cases, render recovery very doubtful ; indeed fatality is generally the consequence : much stress, therefore, is always laid, not only on the certainty of the blister acting, but likewise on its accurate application, so as to prevent disappointment.

Internally, calomel to a quarter of a grain, and one grain of pulv. antimonialis, with a little sacchar. was given every four hours, and a draught with aq. ammon. acet. ʒj after each powder ; which, though continued, and even increased, did not affect the salivary glands. The blister discharged copiously, the remedies proved lightly diaphoretic, and the next morning the little patient was so much better as to be able to keep her eyes open, but could not stand upright a minute.

The same remedies were repeated for two or three days ; and to the draught were added two drops of acetum scillæ. Day after day, under this plan, the child visibly recovered ; and when the heaviness of the eyes and comatose symptoms were removed, a draught, containing an ounce of infusum rosæ, was prescribed quater de die.

The calomel and antimony (in powders) were then continued only night and morning. In the course of three weeks from the first attack the cure was nearly effected, and the noble lady the mother went to the country to recover the strength of the child, still continuing

the draught last ordered without the calomel and antimony, where the perfect cure has been confirmed.

CASE VI.

I lately attended a child at Mr. Humby's, a medical practitioner, St. Alban's Street, St. James's, who laboured under the hydrocephalus membranarum, with flushings, quick pulse, little heat, but comatose symptoms. This case was cured by calomel and antimony, blistering the head; and afterwards *infusum rosæ* was prescribed as a tonic, which finished the cure.

CASE VII.

A child, in Wigmore Street, was attacked with the hydrocephalus membranarum. Stupor, insensibility, flushings alternate, quick pulse, were the symptoms. Mr. Jones, of Edward Street, a respectable apothecary, attended. The head was blistered, a copious discharge was procured, and continued; antimonials and mercurials were administered; perspiration was first promoted, and the intestinal canal was thoroughly opened. Tonics of decoctum cinchonæ and acid of vitriol were then prescribed, and the cure was completed. It is about three years since, and the child is now in perfect health.

CASE VIII.

A child, three years of age, at Kennington, laboured under the symptoms of *hydrocephalus membranarum*, and the pupils of the eyes were even dilated, with startings and comatose symptoms, flushing, rapid pulse, &c. Mr. George Tinkler, then pupil at the St. Mary-le-Bone Infirmary, of Earl Street, Seven Dials, requested my attendance. The case was desperate, and the parents and friends had given up the child as lost, as they commonly do in the watery head. A large blister was applied all over the head; two grains of calomel, and one of antimonium tartarifatum cum pauxillo sacchari, divided into eight parts, were prescribed; one of which was to be taken every four hours, with a draught composed of *ʒij aquæ ammoniæ acetatæ et ʒv aquæ cum syrupo croci*: these remedies excited powerful perspiration: the intestines were opened occasionally by pulvis cremor. tart. et jalapii. These medicines were continued from the 7th to the 14th of February 1799. The amendment was gradual, but evident. On the 15th the tinctura rosarum was ordered ad *ʒvj ter de die*. The child recovered, and is now living in perfect health.

N. B. Where the watery head has been in families, a blister applied to the head on the birth of children, and a discharge continued until puberty, have succeeded in preventing the fatality of the disorder, and life and health have been secured.

If case-writing were the object, except for delivering a few examples of the remedies used, numerous instances might still be produced, to confirm the practice adopted in the removal of the membranous brain-dropfy; which, by some, has lately been called, though improperly, the *brain-fever*.

The Conclusion.

Opus finitum est. The work is finished; and all that has hitherto been discovered, or observed, is unreservedly communicated. From much practice, reflection, and numerous dissections, it appears:

I. That the effusion of serous fluid between the arachnoid membrane and pia mater, though a very *common* disease, has never well been understood; but has been mistaken frequently for brain-fever, convulsive and other disorders*.

II. That indiscriminate cold bathing, and suffering weakly infants to appear almost naked, in this cold country, where sudden transitions of weather from heat to cold are frequent, and pulmonic complaints common, may be considered amongst the causes of watery heads, and other grievous infantile diseases.

III. That this disease has destroyed, and continues to destroy, thousands and thousands annually, of infants and children in every part of the world; by far the greatest number under three years of age; and if the membranous dropfy prove not fatal, yet it degenerates into the dropfy of the ventricles of the brain.

IV. After the age of three or four years, towards the tenth year, it is not frequent; but yet sufficiently so, to render it advisable for practitioners to be on their guard.

* Under head *convulsions*, in the bills of mortality, great numbers appear to perish under two years; which there is great reason to believe die of the watery head.

fluid as can be obtained from the whole scalp, and particularly from the sagittal and lambdoidal sutures depending on cellular communication. Incisions have been boldly made into the brain, even to the ventricles, when the dropfy was seated there; but, as might have been foreseen by every rational practitioner, without success; for, in general, it has proved instantaneously fatal, and never cured in one instance.

XIII. There is great probability, that the decided remedies recommended in this treatise will effect a cure, if early and promptly administered before the dilated pupils and blindness take place, modified according to circumstances and diversity of cases, and by never omitting blistering the whole head, on which the principal expectation of success depends. It is not irrational, therefore, to observe, that the more universal the modes of treatment here recommended become, the less society will probably hear of the fatality of that too-common malady, the watery head of children.

XIV. No relapse has happened, even in one instance, after the cure of *hydrocephalus membranarum*; but warm clothing has been recommended, and cold bathing strictly prohibited; lest the fluids, necessary to be evacuated through the pores,

lower belly, called ascites, yet there are many instances in which I have radically cured that disorder, both after tapping and before it, by evacuants and powerful tonics, according to the improved method of treatment recommended in the above treatise. Mr. Randall, a patient of Mr. Anderson, Great Mary-le-Bone Street, was cured some time after tapping, who now lives in North Baker Street. Mr. Hennekin, next to Middlesex Hospital, was cured without tapping; he was a patient of Mr. O'Donnel, of Marlborough Street. Mr. Kirkwood, Coachmaker, in Queen Street, Golden Square, was likewise cured of a desperate dropfy of the lower belly, joined with an anasarca, or dropfy of the whole body. Mr. Harding, apothecary, between 70 and 80 years of age, in the Strand, was likewise cured. All these are now living, and many others, who have been cured. These *cases* are mentioned to show, that, though diseases may be desperate, yet they should not be abandoned. The cures were effected by squills, hydrargyrus, dropfy-cathartic electuary; but principally producing evacuations, either by purging, or punctures high in the legs, and powerful tonics, of bark, vitriolic preparations, steel, and myrrh; prescriptions of which practice are given in the Treatise on Dropfy; to which is added, a tract on the necessity of encouraging anatomy, in producing excellent surgeons and physicians for the navy, army, &c.

should

should be retained, or thrown on the internal parts. Warm dresses for infants and children have been too much neglected of late, from crediting the irrational speculations, or chimerical notions, of incompetent judges on nursing. In different countries different customs: but in proportion to luxury and refinement, human beings, particularly the infant race, require warmth and indulgences in this cold, variable climate, according to constitutions, &c. Though some *escape* with life, and are *robust* under any *discipline*, yet many others fall victims in the seasoning, become weakened, or perish by different preposterous practices adopted in the management of infants. Error produces deformity!

XV. It is presumed, and sincerely hoped, that the whole profession will unite in the preservation of the infant race, by a humane attention to the important observations here communicated, and in an arduous endeavour, by vigilance, to second these efforts, not only in curing the disease, but in improving whatever may be found defective in the treatment.

P R E C E P T S

On the Management of Infants, to prevent Diseases, &c. and produce vigorous Constitutions, &c.

The profound reasoner, and learned author on the extent of human understanding, Mr. *Locke*; the sagacious Mr. *Addison*, the ingenious M. *Roussseau*, and other philosophers, have attempted to institute maxims for the training of children; but they neither understood anatomy, physiology, pathology, nor therapeutics; without which, it was impossible they could reason well on the science of health, or comprehend what might be salubrious or insalubrious to the infant race. Many erroneous doctrines, therefore, have been advanced, by applying abstracted reasonings to general purposes, of a

mischievous tendency, however excellent their celebrated works may be in other respects. In the present age of refined civilization, it is of little consequence, what customs the Greeks, Romans, or Scythians followed in their warm or cold climates; for what may be *salutary* in one country, may prove *destructive* in another. Experience is the sure guide.

DRESS. The body, in the early months, and head in particular, should be warm in this changeable climate, lest insensible perspiration be obstructed, and humours to be evacuated be retained, and thrown on the *brain*, or other internal parts. Infants should never be bandaged up in rollers or swaddling-clothes, nor, if girls, tight laced; as they narrow the chest, impede respiration, growth, and vigour, and lay the foundation of numerous future evils, as pulmonary consumption, coughs, debility, &c.; and may be the cause of dangerous labours to female adults.

In **SPRING** and **AUTUMN**, calico; in **WINTER**, flannel dresses; and in **SUMMER**, linen, will be most expedient and rational. To appear almost naked, at all seasons, is a hazardous project. The feet and legs should be kept warm, or they may grow ill-shaped.

The robust children of the northern part of this isle bear the vicissitudes of climate, cold bathing, rough vomiting, &c. with less inconvenience and injury than in London and its luxurious vicinity; but they have a marked character!

FOODS. The mother's milk is most natural and salutary, if attainable; if not, the milk of a wet nurse is substituted.

The **WET NURSE** should be of a sound constitution; free from scrophula, or any other hereditary disease; should have good teeth, be young, with plenty of nourishing milk, and be accommodating in disposition. Her food should be bread, meat, animal broths, farinaceous drinks, and mild malt liquor, potatoes, or turnips, mashed; but greens should be sparingly used, or with caution, lest they produce flatulence and indigestion. The interposition of inclination or ignorance against science should never be permitted.

The

The MIND of the NURSE should be calm ; for mental irritation causes ill digestion, impoverishes the chyle and blood, and produces vitiated milk.

The COUNTEenance of the nurse and attendants should be cheerful and pleasing ; for infants very early contract bad habits of grimace, uncouth gesture, &c. by imitation, which, if not timely corrected, continue through life. Violence, petulance, and anger, on trifling causes, often originate from various sources of infantile imitation. Whole nations are more violent, irascible, revengeful ; gay, volatile, dissipated and thoughtless ; grave, proud and reserved ; dull ; patient, meek and forbearing, from these early imitations, than generally imagined.

With the rudiments of education, likewise, are illiberal national prejudices, false notions, and antipathies imbibed, scarcely through life to be eradicated. To produce mild-tempered children, examples of mildness, good breeding, and urbanity, should be exhibited ; but to correct bad habits firmness is expedient, under the guidance of prudence.

DEPRAVED or VITIATED MILK cannot afford healthful nourishment to the infant : from hence, depravity of fluids, the want of due cohesion of the blood, weakness of the solids, a deficiency of osseous particles and gluten, which give firmness to the bones and vigour to the muscles ; the nervous powers become weak and more torpid, and universal debility is the consequence. The bones are soft, and are longer in becoming ossified, or solid, so as to sustain the body ; the bones of the head are longer in uniting : weakness of joints, crookedness, and other diseases from debilitating causes, are the consequence. These serious evils are to be avoided, or corrected by changing the nurse, by accurate nourishing diet, air, medicaments, and discreet management.

DRY-NURSING. Substitutes as nearly approaching the mother's milk should be used. There is some difference between the female human milk living on animal foods, and the

milk of animals fed on grains, hay, grafs, &c. Therefore a fmall portion of animal broth, or beef tea and bread, biscuit, or arrow-root powder, &c. fhould be added to the milk, or whatever food be given, to generate firmnefs to the infant body.

INFANTS fhould never be overloaded with food, nor fed until they reject by vomiting what they receive into the ftomach; neither fhould their ftomachs be fwelled with tea, nor watery fops; for much *moifture* relaxes; whereas *drier*, nutritious diet ftrengthens the habit. Health does not fo much depend on the quantity of food, as on the nutritious affimilation and attraétion of aliment carried to all parts by the arteries *.

The FÆCES of infants fhould be daily examined: if greenifh, or four, thefe fhould be corrected by magnesia, prepared chalk, or testaceous powders; but, in cafes of debility, aq. calcis, bark, rubigo ferri, &c. are proper.

The SURFACE of the inteflines fhould be prevented from becoming incruftated with the coagulum of milk adhering to their villous coat, or infpiffated mucus; for the lacteal veffels cannot abforb healthful chyle under fuch circumftances. The infant cannot thrive, as it is commonly called. *Magnesia hydrargyrata*, a preparation of my invention, compofed of three fourths magnesia alba and one fourth *hydrargyrus purificatus*, well rubbed and united together in dofes from ten to twenty grains twice a day; nitre and æthiops, equal parts, in the fame dofes; or burnt fponge and æthiops, or cinnabar, are excellent not only to prevent, but remove thofe incruftations; occasionally giving a purgative of the pulv. fcammion. cum calomelano, or any other appropriate purge, rhubarb with foda, &c.

RENNET WHEY likewise cleanfes the inteflines, and affords light nourifhment; but children fhould not be indulged in drinking large draughts, to which they are much prone, as

* In the treatife on Diet, volume the fourth of the Rational Practice, may be feen how healthful nutrition is performed; as likewise how depravities happen, with their caufes, remedies, &c.

they relax the coats of the yet feeble stomach, weaken the powers of digestion, procure improper watery chyme, and consequently less salubrious chyle, which very frequently cause diminished cohesion in the particles of the blood, and thus extend their debilitating effects to all the natural, vital, and animal functions. Rickets, watery head, and all distempers arising from debility, follow in a greater or less degree; therefore the liquid food should be sensibly proportioned to the quantity of solids taken, or osseous particles will be deficient.

SIMPLICITY OF DIET should be insisted on; sweets and fours, fruits and sugar, sweetmeats, and all indigestible trash, tarts, pies, heavy puddings, beer, wine, spirits, &c. are injurious to infants; nor are they eligible for children. These errors, and particularly early wine-drinking, frequently give rise to feeble constitutions, and many serious chronic diseases, as gout, rheumatism, gravel, stone, &c. which accompany man with misery through the latter part of life.

EXERCISE. In the infantile months quietude is to be preferred to jolting or tossing infants violently in the air. The brain of the fœtus is almost all fluid: the humidity of the infant brain is above eight times as much as the solid parts*. Is it surprising, that, under the rash discipline infants suffer in the nursery, or out of doors, remote from parental inspection, they should be liable to watery heads, or other grievous diseases?

The HEAD in the early months should be well supported, and never suffered to lean too much backward, lest dislocation, deformity, or sudden death, happen from compression of the

* The humidity of the brain, I have proved, as well as others, by evaporation; and it loses 8308, 8450, 8109, or 8096 parts out of 10,000. In the fœtus the brain is almost fluid; as the senses give impressions and the mind expands, the medullary and cortical substances become firmer in texture. My experiments prove the fluid found in the ventricles of the brain, which has amounted, according to authors, sometimes to thirteen pounds, is not coagulable lymph, but serum, which all evaporates, except a little remaining froth. See the treatise on Madness and reasonings against Suicide, volume the second of the *Rational Practice of Physic*, p. 220.

spinal marrow, &c. Stays, if tight under the chin, or round the neck, check the returning circulation of the blood.

COLD AIR. Children are not to be taken out of their beds in a state of *perspiration*, and suddenly exposed to *cold air*; nor are they to be removed from *cold air* suddenly to *hot rooms*. Colds, coughs, inflammation, infarcted lungs, and death, are the common consequence.

There is a time for every thing. As the body increases in vigour, which it will, if these few rules be observed, unless there be hereditary indisposition; when the limbs become capable of supporting the body, and performing their office; then standing, walking, and puerile exercises, should be allowed, and recommended, according to the strength of the child, which differs almost in every constitution.

JERKING and violently shaking children by the arms, and all rough, barbarous usage, should be strenuously forbid; for incurable lameness has arisen from these causes.

As soon as the **TEETH** are capable of performing mastication, the child should chew bread, and have small portions of minced or pounded lean meat, moistened with beef tea or animal broth, bread, &c. which are much superior in producing and confirming an healthful constitution, to puddings, tarts, vegetables, or indigestible pastry.

As children advance in age and strength, their exercises should be increased to procure bodily vigour and agility; their minds should be well cultivated according to the purposes for which they may be destined, and adorned with a love of virtue and morality, that they may possess **MENS SANA IN CORPore SANO**.

By these and similar means, and by avoiding the errors, prejudices, and extravagant plans of pretenders to the science of nurturing infants, will numerous diseases be prevented, and vigorous healthful children be reared. It is computed, two in three die under two years of age, indubitably by improper management. May the reverse of this calculation be

experienced, in future, by a humane and rational attention to the duties which morality and religion demand from parents to their tender offspring !

On the general Modes of treating Children's Diseases.

As a long experience has brought conviction, that the treatment of infantile distempers may be improved, notwithstanding many ingenious authors have appeared on these subjects, a few practical observations may not be unacceptable to junior practitioners.

DISEASES FROM ACIDITY, gripings, &c. are cured by antacids, as magnesia and testaceous powders, prepared chalk, aromatics, &c.; and if with purgings, solutions of *extractum ligni Campechensis* in chalk julap may be prescribed.

The THRUSH is treated in a similar manner; but if inclining to a livid colour, a little bark should be added.

TEETHING. Testaceous powders and small portions of nitre to mitigate inflammation in the gums, and light purgatives, are sometimes necessary; lancing the gums, too early, often produces callosities, and impedes the appearance of the teeth, increases pain, &c. &c.

WATCHFULNESS, or CONVULSIONS, generally arise from gripings in the bowels, little fevers, pain, &c. and they are idiopathic, or sympathetic. The causes should be investigated, antacids and laxatives prescribed; but opiates should rarely, or never, be given to very young infants, lest they destroy life. Mitigating symptoms by OPIATES, is not removing the CAUSES of diseases.

CRUSTA LACTEA, or scabby eruptions, supposed to arise from ill qualities in the milk, or other not manifest causes, are cured by ointments composed of ung. spermaceti, with camphor, and a very small portion of white precipitate; internally, with magnesia, with or without æthiops mineral, cinabar or other purifiers, and a little nitre in florid inflammatory constitutions.

ANI PROCIDENTIA, or falling down of the fundament, is generally a sign of debility; therefore it should be cured on the plan recommended for weak habits; only costiveness must be prevented, by mild aperients.

ATROPHIA, or WASTING OF THE BODY, is cured by removing the cause. If from impoverished food, that which is more nutritious is to be substituted; if from obstructed mesenteric glands, mineral alteratives are to be prescribed; if from the surface of the intestines being covered with mucus, so as to render the lacteals impervious, by calcined magnesia, mineral alteratives, or detergents of the saponaceous class: if from debility, by bark, or chalybeate preparations or waters, as the Hampstead, Tunbridge, aq. calcis, &c.

RICKETS. This disease, not without reason, has been supposed to arise from a prevailing acidity, not only in the primæ viæ, but extending its effects to the fluids and solids. The particles destined to give calcareous or glutinous principles for consolidating bones, cartilages, ligaments, muscles, membranes, coats of vessels, &c. are either decomposed, or do not reach their natural destination to be attracted and retained in nutrition. Extract. cort. Peruv. et aq. calc. are proper.

The rickety limbs are flaccid, the bones curve, the body becomes crooked, the wrists and hands swell, the muscles are debilitated, the nervous powers influencing action are impeded, perverted; the belly is gross, the intestines inflated, the head is commonly large and heavy, the sensations dull; the functions, animal, vital, or natural, partake of the debilitating influence; no secretion nor excretion is regularly performed.

The PREVENTION of the RICKETS and infantile debility has already been considered in the doctrines of nursing; the causes and cure of this debilitating and deforming disorder are now to be considered, which latter may be applied to the treatment of the *scrophula*, or king's evil; but wherever this disease is in a family, *mild mineral alteratives* should be given from birth to puberty!

The RACHITIS, or rickets, is a modern disease; it was unknown to our athletic ancestors, who fed on plenty of meat, strong ale, and beer. On the continent it is called the English malady, because our countryman, Glisson, was the first who described its symptoms. It has been considerably increased since the inferior classes have relaxed their stomachs and constitutions by universal TEA-DRINKING. Sea-scurvy, from long sea voyages and maritime discoveries, venereal infection, and the introduction of foreign luxuries, may likewise contribute to the extension of this disfiguring disease, which is more common among the inferior than the superior classes of society, and arises from calcareous deficiency.

The cure demands the removal of visceral and mesenteric glandular obstruction, by hydrargyric preparations and antimonials, as hydrargyrus cum creta, hydrargyrus saccharatus, magnesia hydrargyrata, pulvis antimonialis, æthiops mineralis, &c. &c.; corroborating the stomach and intestines by bark and steel; the non-admission of tea, watery or liquid food; lest the stomach, intestines, and lacteals, be more relaxed; the administration of animal nutritious aliment, aq. calcis and bark, which may restore the earthy particles and gluten to the bones, ligaments, cartilages, muscles, &c.

PURE AIR in the country is to be preferred to a town atmosphere; but the north-north-east and easterly winds are dreadfully inimical in England to all ranks.

COLD BATHING is generally recommended; but it should be observed, in general, that if the least disease of the thorax be present, or if the integuments and muscles be flabby, and the child inclined to dropsical complaints, with paleness and a superabundance of serum in the habit, or should have a very large head, then this supposed bracer must be very cautiously used, or wholly omitted. Cold bathing does not afford nutriment, it does not create powerful digestion, good chyle, nor blood; nor will it remove visceral mesenteric obstruction, nor convey calcareous particles to the bones to give solidity and firmness, nor gluten to the muscles to strengthen

their constituent principles; nor does it appear to *improve* the animal functions. Those who are naturally robust will be so without cold bathing; to those who are weak, under many circumstances, it may do mischief; and it is more eligible for warm equable climates, than this cold, variable, isolated region; for adults than infants.

SUFFOCATIO STRIDULA, TRACHITIS. The **CYNANCHE TRACHEALIS**, or croup, is an inflammation of the internal membrane of the trachea, as many dissections made by myself and others prove; which is to be treated spiritedly in the first moments that the suffocating respiration and dangerous cough appear. Bleeding in the jugular is to be repeated if necessary, blistering the *pomum Adami* and whole throat, powerful hydrargyric, evacuating cathartics, sudorifics afterwards of antimon. tartarizat. pulvis antimonialis, calomel and saccharum album, are to be often given; nitrous drinks, or aqua ammoniæ acetata diluted, are to be frequently administered, and a warm bath in which nitre is dissolved, will be proper to open the external pores. All the emunctories, or outlets, should be opened and liberated from obstruction. Inhaling warm vapours is more useful in warm, than in cold frosty weather.

Opiates are always to be avoided in this and all dangerous inflammatory diseases, that attack the respiratory organs, brain, intestines, &c.

The **MEASLES** during the eruption require antimonial diaphoretics, with or without calomel; but as this disease produces inflamed lungs, in which consists its principal danger, either immediate or remote, some parts of the treatment last recommended for the inflammation of the *trachea* may be aptly applied, with blistering the serobiculus cordis, &c. I have known death ensue from bleeding in the measles whilst the young patient was in a perspiration.

SMALL-POX. If distinct, requires only light antimonials to direct the fluids to the skin, and hydrargyric cathartics with rhubarb and calomel afterward.

If the CONFLUENT SMALL-POX appear, then, from the beginning, tinctura rosarum and cortex Peruvianus, wine, &c. are necessary to be continued, according to ages, constitutions, and circumstances, all through the eruptive and succeeding stages. This practice is so certainly successful, as well as in all putrid-tending infectious fevers, that it cannot be too strongly inculcated. It has secured and saved thousands and thousands of patients, in all the *putrid* diseases of every climate, and would continue to do so, if novices, inexperienced novices, did not daily start up, who will not listen to the voice of experience, nor reason; but who, governed by some temporary, *unproved hypothesis* or delusion, *slaughter*, without mercy, the unfortunates committed to their charge. For more on these subjects, the treatises on the *putrid sore throat* and *scarlet fever*, &c. may be consulted.

INOCULATION FOR THE SMALL-POX is generally very *safe* and *successful*, if the fluid be taken from choice subjects, and before the suppuration be quite completed, in the crystalline state. A little calomel previous, and the *hydrargyrus cum cretâ*, or hydrargyrus saccharatus, are what I have always prescribed to be taken every night, and a light laxative occasionally. Superior success to what I have seen, by those means, and pure, free air, can never be experienced.

THE INOCULATION OF THE COW-POX, as a substitute for the small-pox, has been lately introduced. May it answer the wishes and expectations of the ingenious inventor, and the gentlemen who have industriously propagated its universality!

THE TUSSIS CONVULSIVA, pertussis, or whooping cough, is a disease, as dissections demonstrate, of the mucal glands, or surface of the stomach and œsophagus, irritating and increasing diseased secretion; exciting violent efforts of coughing almost to strangulation, by sympathy and contiguity of parts.

The stomach, œsophagus, diaphragm, lungs, and trachea, all appear in violent convulsive action, until the irritating mucal fluid is evacuated by vomiting. Immediately after, the patient is easy, until another attack repeats the same furious

symptoms. Various projects of cure have been adopted; but the disease frequently resists whatever is prescribed, for weeks successively. Vomits are hazardous. The offending fluid should be directed downwards by calomel and rhubarb, every other day; and as hydrargyric preparations avail in mucal glandular affections, hydrargyrus cum cretâ, magnesia hydrargyrata, &c. are useful, and the irritation may be diminished by the elixir paregoric dilated, or by saponaceous, oleaginous detergents, united to syr. papav. alb. observing the conditions concerning opiates already communicated.

Antacids, volatile or vegetable alkalies, to neutralize or correct acid air, united to solutions of fetid gums, are most efficacious; but in violent inflammatory cases, nitre in solution with camphor and musk, or aq. calcis, with an addition of paregoric elixir, are useful.

It may be added; that if the LEGISLATURE of every country were to give some small gratuity, either in money or privileges, to parents of the inferior classes, who, by rational modes of nursing, produce healthful children to the age of five years, millions of the infantile race might be preserved, who, in the present order of things, fall victims to false principles, negligence, or ignorance!

The prosperity, wealth, and defence of every state, depend on the numbers, industry, strength, and spirit of the people; it is the duty, therefore, of every government to adopt such wise measures, in procuring wholesome foods, &c. as may conduce to these IMPORTANT purposes.

Thus have been delivered some experienced and successful methods for the management of children, &c. which candour, judgment, and science, may embrace. It is sincerely hoped, that neither ignorant prejudices, imbibed from speculative writers, inexperience, nor an opposition to improvement, will have any influence in depriving society of those benefits, that are intended by the present practical observations.